

BC #6



PCT10

ENTERED

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/10/089,014

DATE: 12/02/2002
 TIME: 15:26:42

Input Set : A:\11283-019US1.TXT
 Output Set: N:\CRF4\12022002\J089014.raw

4 <110> APPLICANT: Nakayama, Ken-ichi
 5 Jigami, Yoshifumi
 7 <120> TITLE OF INVENTION: GDP-4-KETO-6-DEOXY-D-MANNOSE-3,
 8 5-EPIMERASE-4-REDUCTASE GENE DERIVED FROM ARABIDOPSIS
 9 THALIANA
 11 <130> FILE REFERENCE: 11283-019US1
 13 <140> CURRENT APPLICATION NUMBER: US 10/089,014
 14 <141> CURRENT FILING DATE: 2002-03-05
 16 <150> PRIOR APPLICATION NUMBER: PCT/JP00/02049
 17 <151> PRIOR FILING DATE: 2000-03-30
 19 <150> PRIOR APPLICATION NUMBER: JP 329045/1999
 20 <151> PRIOR FILING DATE: 1999-11-19
 22 <160> NUMBER OF SEQ ID NOS: 6
 24 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 26 <210> SEQ ID NO: 1
 27 <211> LENGTH: 312
 28 <212> TYPE: PRT
 29 <213> ORGANISM: Arabidopsis thaliana
 31 <400> SEQUENCE: 1
 32 Met Ser Asp Lys Ser Ala Lys Ile Phe Val Ala Gly His Arg Gly Leu
 33 1 5 10 15
 34 Val Gly Ser Ala Ile Val Arg Lys Leu Gln Glu Gln Gly Phe Thr Asn
 35 20 25 30
 36 Leu Val Leu Lys Thr His Ala Glu Leu Asp Leu Thr Arg Gln Ala Asp
 37 35 40 45
 38 Val Glu Ser Phe Phe Ser Gln Glu Lys Pro Val Tyr Val Ile Leu Ala
 39 50 55 60
 40 Ala Ala Lys Val Gly Gly Ile His Ala Asn Asn Thr Tyr Pro Ala Asp
 41 65 70 75 80
 42 Phe Ile Gly Val Asn Leu Gln Ile Gln Thr Asn Val Ile His Ser Ala
 43 85 90 95
 44 Tyr Glu His Gly Val Lys Lys Leu Leu Phe Leu Gly Ser Ser Cys Ile
 45 100 105 110
 46 Tyr Pro Lys Phe Ala Pro Gln Pro Ile Pro Glu Ser Ala Leu Leu Thr
 47 115 120 125
 48 Ala Ser Leu Glu Pro Thr Asn Glu Trp Tyr Ala Ile Ala Lys Ile Ala
 49 130 135 140
 50 Gly Ile Lys Thr Cys Gln Ala Tyr Arg Ile Gln His Gly Trp Asp Ala
 51 145 150 155 160
 52 Ile Ser Gly Met Pro Thr Asn Leu Tyr Gly Pro Asn Asp Asn Phe His
 53 165 170 175
 54 Pro Glu Asn Ser His Val Leu Pro Ala Leu Met Arg Arg Phe His Glu
 55 180 185 190

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/089,014

DATE: 12/02/2002
TIME: 15:26:42

Input Set : A:\11283-019US1.TXT
Output Set: N:\CRF4\12022002\J089014.raw

56 Ala Lys Val Asn Gly Ala Glu Glu Val Val Val Trp Gly Thr Gly Ser
57 195 200 205
58 Pro Leu Arg Glu Phe Leu His Val Asp Asp Leu Ala Asp Ala Cys Val
59 210 215 220
60 Phe Leu Leu Asp Arg Tyr Ser Gly Leu Glu His Val Asn Ile Gly Ser
61 225 230 235 240
62 Gly Gln Glu Val Thr Ile Arg Glu Leu Ala Glu Leu Val Lys Glu Val
63 245 250 255
64 Val Gly Phe Glu Gly Lys Leu Gly Trp Asp Cys Thr Lys Pro Asp Gly
65 260 265 270
66 Thr Pro Arg Lys Leu Met Asp Ser Ser Lys Leu Ala Ser Leu Gly Trp
67 275 280 285
68 Thr Pro Lys Val Ser Leu Arg Asp Gly Leu Ser Gln Thr Tyr Asp Trp
69 290 295 300
70 Tyr Leu Lys Asn Val Cys Asn Arg
71 305 310
73 <210> SEQ ID NO: 2
74 <211> LENGTH: 936
75 <212> TYPE: DNA
76 <213> ORGANISM: Arabidopsis thaliana
78 <220> FEATURE:
79 <221> NAME/KEY: CDS
80 <222> LOCATION: (1)...(936)
82 <400> SEQUENCE: 2
83 atg tct gac aaa tct gcc aaa atc ttc gtc gcg ggt cat cgt ggt ttg 48
84 Met Ser Asp Lys Ser Ala Lys Ile Phe Val Ala Gly His Arg Gly Leu
85 1 5 10 15
87 gtt gga tct gcc att gtc cgc aag ctt cag gaa caa ggt ttc acc aat 96
88 Val Gly Ser Ala Ile Val Arg Lys Leu Gln Glu Gln Gly Phe Thr Asn
89 20 25 30
91 ctc gtt ctt aaa aca cac gcc gag ctt gat ctc act cgt caa gcc gat 144
92 Leu Val Leu Lys Thr His Ala Glu Leu Asp Leu Thr Arg Gln Ala Asp
93 35 40 45
95 gtt gaa tcc ttc ttt tct caa gag aag cca gtt tat gta atc cta gca 192
96 Val Glu Ser Phe Phe Ser Gln Glu Lys Pro Val Tyr Val Ile Leu Ala
97 50 55 60
99 gca gct aaa gtt ggt ggt att cac gct aac aac acc tat cct gct gat 240
100 Ala Ala Lys Val Gly Gly Ile His Ala Asn Asn Thr Tyr Pro Ala Asp
101 65 70 75 80
103 ttc att ggt gtc aat ctc cag att cag acc aat gtg atc cac tct gca 288
104 Phe Ile Gly Val Asn Leu Gln Ile Gln Thr Asn Val Ile His Ser Ala
105 85 90 95
107 tat gag cac ggt gtg aag aag ctt ctc ctt gga tca tcc tgc att 336
108 Tyr Glu His Gly Val Lys Lys Leu Leu Phe Leu Gly Ser Ser Cys Ile
109 100 105 110
111 tac cct aaa ttt gct cct cag cca att cct gag tct gct ttg tta aca 384
112 Tyr Pro Lys Phe Ala Pro Gln Pro Ile Pro Glu Ser Ala Leu Leu Thr
113 115 120 125
115 gca tcg ctt gaa cca act aat gag tgg tat gct att gct aag atc gct 432

RAW SEQUENCE LISTING DATE: 12/02/2002
PATENT APPLICATION: US/10/089,014 TIME: 15:26:42

Input Set : A:\11283-019US1.TXT
 Output Set: N:\CRF4\12022002\J089014.raw

```

116 Ala Ser Leu Glu Pro Thr Asn Glu Trp Tyr Ala Ile Ala Lys Ile Ala
117      130          135          140
119 ggg att aag act tgt cag gct tat agg att cag cac gga tgg gat gca      480
120 Gly Ile Lys Thr Cys Gln Ala Tyr Arg Ile Gln His Gly Trp Asp Ala
121      145          150          155          160
123 atc tct ggc atg cct act aat ctc tat ggt cct aat gac aat ttc cac      528
124 Ile Ser Gly Met Pro Thr Asn Leu Tyr Gly Pro Asn Asp Asn Phe His
125      165          170          175
127 ccg gag aat tct cat gtg ctt cct gct ctt atg agg agg ttc cac gag      576
128 Pro Glu Asn Ser His Val Leu Pro Ala Leu Met Arg Arg Phe His Glu
129      180          185          190
131 gcg aaa gtg aat gga gcg gag gaa gtt gtg gtg tgg ggt aca ggt agt      624
132 Ala Lys Val Asn Gly Ala Glu Glu Val Val Val Trp Gly Thr Gly Ser
133      195          200          205
135 ccg ttg agg gag ttc ttg cat gtt gat gat ttg gct gat gct tgt gtt      672
136 Pro Leu Arg Glu Phe Leu His Val Asp Asp Leu Ala Asp Ala Cys Val
137      210          215          220
139 ttc ttg ctg gat cga tac agc ggg ttg gag cat gtt aac att gga agt      720
140 Phe Leu Leu Asp Arg Tyr Ser Gly Leu Glu His Val Asn Ile Gly Ser
141      225          230          235          240
143 ggt caa gaa gtg act att aga gag ttg gct gag ttg gtg aaa gag gtt      768
144 Gly Gln Glu Val Thr Ile Arg Glu Leu Ala Glu Leu Val Lys Glu Val
145      245          250          255
147 gtt ggt ttt gaa ggg aag ctt gga tgg gat tgc act aag cca gat ggc      816
148 Val Gly Phe Glu Gly Lys Leu Gly Trp Asp Cys Thr Lys Pro Asp Gly
149      260          265          270
151 aca ccg agg aaa ctt atg gac agc tca aag ctc gcg tct ttg ggt tgg      864
152 Thr Pro Arg Lys Leu Met Asp Ser Ser Lys Leu Ala Ser Leu Gly Trp
153      275          280          285
155 aca cct aag gtt tct ctt aga gat ggt ctg agc caa act tat gat tgg      912
156 Thr Pro Lys Val Ser Leu Arg Asp Gly Leu Ser Gln Thr Tyr Asp Trp
157      290          295          300
159 tat ttg aag aat gtt tgc aac cga
160 Tyr Leu Lys Asn Val Cys Asn Arg
161      305          310
164 <210> SEQ ID NO: 3
165 <211> LENGTH: 39
166 <212> TYPE: DNA
167 <213> ORGANISM: Artificial Sequence
169 <220> FEATURE:
170 <223> OTHER INFORMATION: primer
172 <400> SEQUENCE: 3
173 attggtagacca tgtctgacaa atctgccaaa atcttcgtc      39
175 <210> SEQ ID NO: 4
176 <211> LENGTH: 50
177 <212> TYPE: DNA
178 <213> ORGANISM: Artificial Sequence
180 <220> FEATURE:
181 <223> OTHER INFORMATION: primer
  
```

RAW SEQUENCE LISTING DATE: 12/02/2002
PATENT APPLICATION: US/10/089,014 TIME: 15:26:42

Input Set : A:\11283-019US1.TXT
Output Set: N:\CRF4\12022002\J089014.raw

183 <400> SEQUENCE: 4
184 ttatcgacg atatctcggt tgcaaacatt cttcaaatac caatcataag 50
186 <210> SEQ ID NO: 5
187 <211> LENGTH: 27
188 <212> TYPE: DNA
189 <213> ORGANISM: Artificial Sequence
191 <220> FEATURE:
192 <223> OTHER INFORMATION: primer
194 <400> SEQUENCE: 5
195 gtcgaattca tggcgtcaga gaacaac 27
197 <210> SEQ ID NO: 6
198 <211> LENGTH: 27
199 <212> TYPE: DNA
200 <213> ORGANISM: Artificial Sequence
202 <220> FEATURE:
203 <223> OTHER INFORMATION: primer
205 <400> SEQUENCE: 6
206 gaactcgaga ggttgctgct tagcatc 27

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/089,014

DATE: 12/02/2002

TIME: 15:26:43

Input Set : A:\11283-019US1.TXT

Output Set: N:\CRF4\12022002\J089014.raw